

Psychometric Properties of the Multi-dimensional Scale of Perceived Social Support among Thai Youth

นิพนธ์ต้นฉบับ

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Original Article

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บทคัดย่อ

วัตถุประสงค์: เพื่อทดสอบคุณภาพเชิงจิตวิทยาของแบบวัดการสนับสนุนทางสังคมฉบับภาษาไทย (the Multi-dimensional Scale of Perceived Social Support; 12-Item MSPSS) ในกลุ่มตัวอย่างสองกลุ่ม ได้แก่ นักเรียนมัธยมศึกษาตอนปลายและนักศึกษาระดับอุดมศึกษา **วิธีการศึกษา:** เป็นการวิจัยเครื่องมือวิจัย คัดเลือกกลุ่มตัวอย่างเข้าร่วมโครงการจากสองแหล่ง คือ โรงเรียนมัธยมศึกษาสามแห่ง และมหาวิทยาลัยของรัฐแห่งหนึ่ง โดยกลุ่มตัวอย่างที่มีโรคเรื้อรังทางร่างกายและโรคทางจิตจะถูกคัดออกจากการวิจัย กลุ่มตัวอย่างได้ตอบแบบวัดการสนับสนุนทางสังคมฉบับภาษาไทย วิเคราะห์ข้อมูลโดยใช้การวิเคราะห์องค์ประกอบเชิงสำรวจและเชิงยืนยัน เพื่อทดสอบความตรงเชิงโครงสร้างของเครื่องมือ วิเคราะห์ความเที่ยงของเครื่องมือด้วยการทดสอบความคงที่ภายใน **ผลการศึกษา:** มีตัวอย่าง นักเรียนมัธยมศึกษาตอนปลาย 624 คน และนักศึกษาระดับอุดมศึกษา 966 คน พบความตรงด้านโครงสร้างของแบบวัดการสนับสนุนทางสังคมฉบับภาษาไทยในตัวอย่างทั้งสองกลุ่ม ซึ่งประกอบด้วยองค์ประกอบ 3 ด้าน โดยแต่ละองค์ประกอบของแบบวัดมีข้อคำถามที่เหมือนกัน พบว่าค่าน้ำหนักองค์ประกอบอยู่ในเกณฑ์ที่ยอมรับได้ และโครงสร้างสามองค์ประกอบมีความสอดคล้องกับข้อมูลทั้งสองกลุ่มตัวอย่าง พบว่าค่าความเชื่อมั่นของแบบวัดทั้งสองกลุ่มตัวอย่างแสดงค่าอยู่ในเกณฑ์ที่ยอมรับได้ **สรุป:** แบบวัดการสนับสนุนทางสังคมฉบับภาษาไทยมีคุณภาพเชิงจิตวิทยาที่ยอมรับได้เมื่อทดสอบในวัยรุ่นไทยทั้งนักเรียนมัธยมศึกษาตอนปลายและนักศึกษาระดับอุดมศึกษา การวิจัยเพื่อพัฒนาคุณภาพของแบบวัดนี้ในอนาคตอาจทดสอบคุณภาพแบบวัดนี้ในกลุ่มตัวอย่างอื่นต่อไป

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Abstract

Objective: To test psychometric properties of the Thai version of the Multi-dimensional Scale of Perceived Social Support (12-Item MSPSS) and compare findings across two samples: high school students and university students in Thailand. **Method:** In this methodological research, participants were recruited from two settings, namely three high schools and a public university. They were excluded if they had chronic medical illness and/or mental disorders requiring hospitalization. Participants were asked to complete self-administered questionnaires, including the MSPSS. Data were analyzed using exploratory and confirmatory factor analyses (EFA and CFA) to explore the construct validity of the scale. Reliability analyses were also carried out to test internal consistency reliability. **Results:** The two samples were 624 and 966 secondary school and undergraduate students, respectively. For all two samples, the MSPSS contained three distinct factors. Questionnaire items retained for each factor were also similar across two samples. All two samples had acceptable fit indices and all factor loadings achieved statistical significance. Internal consistency reliability was also acceptable for the two samples. **Conclusion:** Acceptable and sound psychometric properties of the Thai version MSPSS were found in Thai adolescent population, both in high school and university. Future research could aim to the scale in other Thai populations.

Keywords: Multi-dimensional Scale of Perceived Social Support, construct validity, adolescents, Thai

Introduction

The United Nations defines youth as those persons between the ages of 15 and 24 years.¹ Youth is best understood as a period of transition from the dependence of childhood to adulthood's independence. Most young people are healthy, however, more than 1.8 million young people aged 15 to 24 die each year.² A much greater number of youth suffer from illnesses which hinder their ability to grow and develop to their full potential. Youth are at the greatest risk of a range of mental-health conditions during their transition from childhood to adulthood, due to physical, psychological and emotional changes which occur during this vulnerable period.³ Also, there is a great number of youth engaging in behaviors

that jeopardize not only their current state of health, but frequently their health for years to come. It is estimated that nearly two-thirds of premature deaths and one-third of the total disease burden in adults are associated with conditions or behaviors that began in their youth including tobacco use, a lack of physical activity, unprotected sex and exposure to violence. Mental-health conditions, which include behavioral and mental-health problems, e. g. depression, anxiety disorders, post-traumatic stress disorder, and disruptive behavioral disorders (such as attention deficit hyperactivity disorder, mood disturbances, substance use, suicidal behavior, and aggressive/disruptive behavior) are also the

leading causes of adjustment problems in adolescents and young people worldwide.³

There is a considerable interest among scientists and researchers in social support young people receive because it is crucial for youth's general health and well-being.^{4,5} The role of social support is well recognized as a coping resource in relation between stress and psychological or physical symptoms⁶, and is considered to be an important protective factor that has significant influence on various aspects of adolescent health and well-being including mental health⁷, physical health outcomes^{8,9}, and behavior related health.¹⁰ Adolescents need the support from family, friends, and significant others to optimally manage health problems; therefore, the perception of social support is a vital component to successful management of these problems.

Social support is a theoretically complex, multidimensional construct that has been conceptualized, operationalized, and measured in a variety of ways. A number of scales have been designed to assess social support, including in-person interviews and self-report questionnaires. The Multidimensional Scale of Perceived Social Support (MSPSS), one of the many scales designed to assess social support, was originally developed by Zimet et al.¹¹ It was designed to assess the perception of social support adequacy from three different sources including family, friends and significant others. With only 12 items, the MSPSS is thus simple to use and can be quickly administered and scored. The inclusion of evaluation of support from a 'significant other' is one unique aspect of the MSPSS that makes it particularly relevant to youth, where a time when interest in dating emerges and there may be an increased influence of adults outside of the family. It leaves the definition of who the "significant other(s)" is (are) to the respondent. This 12-item scale uses a 7-point Likert-type response format ranging from 1-very strongly disagree to 7-very strongly agree. Each of the three subscales (i.e., family, friends, and significant other) is assessed with four items.

The MSPSS has demonstrated psychometric validity in several studies conducted in different populations of adolescents and adults worldwide. The reliability, validity, and factor structure of the MSPSS have been demonstrated across a number of different samples including university students^{11,12}, pregnant women¹³, adolescents living abroad¹⁴, pediatric residents¹⁴, urban adolescents¹⁵, and psychiatric patients.⁷ The MSPSS has also been used in adult patients with diabetes and end-stage renal disease.¹⁶ It was translated

into many languages. The MSPSS instrument has shown good internal consistency and strong factorial validity in these populations.^{11,14,15,17} The factor analyses of the studies mentioned above confirmed the three subscale structures of the MSPSS namely family, friends, and significant other to account between 79.3% and 83.9% of the variance.

Exploratory factor analyses have shown that a three-factor structure is suitable for the MSPSS in adolescent and adult populations with ethnic and socioeconomic diversity. While most of these studies reported good internal reliability and construct validity of the translated MSPSS, only some were able to replicate the three-factor solution of the MSPSS. For instance, in the study conducted by Akhtar et al¹⁸ among Pakistani women, the Urdu translation of the MSPSS yielded only a single-factor solution, indicating that the participants in the study viewed social support as a single construct. In the study among Chinese adolescents¹⁹, only two factors were identified, those of Family and Friends. The items on the Significant Others and Friends subscales loaded on a single factor, which was combined into a single Friends factor. On the other hand, Tonsing, Zimet, and Tse¹⁷ found that the Urdu version of the MPSS yielded only two factors. The subscales of Family and Significant others were combined into a single factors of the Family subscale. In addition to this evidence, the systematic review of MSPSS' psychometric properties from 22 languages revealed that only nine studies evaluated the proper psychometric properties using confirmatory factor analysis.²⁰ So it is a poor evidence for construct validity of this instrument in some countries. In Thailand, there is a study conducted in medical students and psychiatric patients which was able to replicate the three-factor solution of the MSPSS, but it was not able to generalize to implement in a youth population.²¹ The objective of this study, therefore, was to examine the psychometric properties of the 12-item MSPSS in a nonclinical sample of high school and university students, a youth population on which the MSPSS has not previously been tested in Thailand. Findings from this study could provide solid evidence to support the construct validity of the measurement across two groups of populations.

Methods

In this methodological research, psychometric properties of the 12-Item MSPSS including scale validity, the conceptual structure, and reliability across two samples were assessed.²²

The study population were adolescents from two settings, three high schools and one University in Thailand. The first study sample was high school students. They were randomly recruited from three different schools in Bangkok and Nakhonpathom province in Thailand, two of them are public and one is private. The first school is a boy school, the second school is a girl school, while the third one is a secular school.

Following the ethics approval, the researchers coordinated with the school heads and teachers to collect data. First, the researchers arranged out-of-class meetings with students to explain the study, distribute personal information sheet, answer questions they might have and seek their participation. Then, the students were asked to bring the personal information sheet to discuss with their parents. Interested students and their parents were then asked to sign consent and assent forms respectively. Next, another meeting was scheduled and interested students were asked to complete the self-reported questionnaires. Data collection process in this sample was done in June 2017.

The second study sample was undergraduate university students. They were recruited from a public university in Thailand. Participants would be eligible for this study if they were enrolled full-time for undergraduate programs regardless of schools/faculty. All students would be excluded if they had physical or mental conditions requiring medical attention. Following the approval from the university ethic committee (IRB) , the researchers seek permission from all schools/faculties to collect data from their respective students. Then, the researchers organized out-of-class meetings with students to provide the information about the study, distribute personal information sheet and invite them to participate in the study. Interested participants were asked to sign a consent form and complete the self-administered questionnaire. Data collection process in the second sample of university students was done in during September to October, 2015.

Sample size estimation was conducted for two samples. Information for sample size calculation was from two large studies. The first one was a study examining factors influencing psychological well-being and drugs use in secondary school students, conducting in three high schools in Bangkok and Nakhonpathom province; while the second study was from a cross-culture comparison of stress, protective factors and psychological well-being among undergraduate university students in Thailand and Singapore.

The first sample for high school students was calculated using power analysis (G- Power) for Structural Equation Modeling²³ with 7 latent variables, an 80% power of test, a significant level of 0.05, and an effect size of 0.88 from the work of Gibbon and colleagues (2010).²⁴ A sample of 605 participants was required.

The second sample of university students was also calculated using power analysis (G- Power) for Structural Equation Modeling²³ with 6 latent variables, 8 observed variables, an 80% power of test, a significant level of 0.05, and an effect size of 0.88 from the similar work of Gibbon and co-workers (2010).²⁴ A sample of 589 participants was required.

Ethical Consideration

Study protocol was approved by the Research Ethics Committee of Mahidol University for high school sample (COA No. 2016/ 76. 0212) and university sample (COA No.2014/059.0805). All participants were asked to sign the informed consent to participate in the study after receiving verbal and written information about the study objectives and procedures. Signed informed consent from their parents were also obtained. The investigators emphasized the issues of voluntary participation, confidentiality, and anonymity during the data collection. To protect the identity of the participants, they were advised not to write their personal information on the questionnaire. Furthermore, the signed consent forms were kept separately from the completed questionnaires and there were no links between the two documents. Therefore, it was not possible to access to participants' information.

Instruments

Perceived Social Support was measured with the 12-item the Multi-dimensional Scale of Perceived Social Support.¹² The MSPSS is a 12-item, self-reported measure, which consists of three subscales that evaluate support from family, friends, and significant others with four items for each subscale. The instrument uses a Likert-type rating scale which ranges from 1-very strongly disagree to 7-very strongly agree. Scores of the 12 items were summed for a total score which ranges from 12 to 84 where higher scores indicate more perceived support.¹⁴ The Thai-version MSPSS was translated using the back-translation method by Boonyamalik in 2005 and it had a good reliability with a Cronbach's coefficient alpha of 0.88 - 0.89.²⁵⁻²⁷

Statistical analysis

For both samples, descriptive statistics including mean with standard deviation and frequency with percentage were used to describe participants' personal information using computer statistical software package. Then, exploratory factor analysis (EFA) was performed in order to identify a factorial structure of the MSPSS. Factor loadings greater than 0.40 would be sufficiently for the underlying factor.^{28,29} Next, confirmatory factor analysis (CFA) were performed using AMOS version 23.0. The resulting factor structures from EFA were submitted to AMOS. The following fit indices were used to determine if the submitted structures fit well with the sample data: a) chi-square per degree of freedom (χ^2/df) of $< 5^{27}$, b) the values of Normed Fit Index (NFI), Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) of > 0.90 (acceptable fit) and 0.95 (excellent fit)³⁰; and c) RMSEA of < 0.05 and 0.08 for close and reasonable fit, respectively.³¹

Results

A total of 624 high school students (sample 1) and 966 university students (sample 2) participated in the study. There were more female than male students in each of the two samples. Their ages ranged from 15 to 24 years old. As expected, university students were older than high school students. Concerning religion, most of the participants in the two samples were Buddhist (Table 1).

Table 1 Characteristics of study participants: sample 1 (624 high school students) and sample 2 (966 university students).

	Sample 1		Sample 2	
	N	%	N	%
Gender				
Male	265	42.50	307	31.80
Female	359	57.50	650	67.30
Missing	-	-	9	0.90
Religion				
Buddhism	574	92.00	913	94.50
Christian	26	4.20	20	2.10
Islam	9	1.40	13	1.30
Others	15	2.40	-	-
Missing	-	-	20	2.1
Age (mean \pm SD)	16.14 \pm 0.97		20.21 \pm 1.51	

Factor structure of the MSPSS based on exploratory factor analyses

Exploratory factor analysis indicated that the 12-item MSPSS had three factors across the two samples (Table 2) and all items loaded strongly and cleanly on their respective factors ($\lambda > 0.32$). Results from reliability analysis suggested that factors for the sample 1 and 2 had acceptable internal consistency reliability as evidenced by Cronbach's alpha coefficients of > 0.70 (Table 2).

Table 2 Factor loadings of the MSPSS Scale across two samples: sample 1 (624 high school students) and sample 2 (966 university students).

Factors	Factor loadings by sample					
	Sample 1			Sample 2		
	Factor 1	Factor 2	Factor 3	Factor 1	Factor 2	Factor 3
Factor 1: Friend support						
6. My friends really try to help me.	0.719	0.193	0.253	0.734	0.240	0.319
7. I can count on my friends when things go wrong.	0.842	0.135	0.068	0.783	0.214	0.263
9. I have friends with whom I can share my joys and sorrows.	0.801	0.195	0.214	0.773	0.251	0.262
12. I can talk about my problems with my friends.	0.750	0.173	0.131	0.755	0.230	0.234
Factor 2: Family support						
3. My family really tries to help me.	0.140	0.779	0.162	0.173	0.793	0.240
4. I get the emotional help & support I need from my family.	0.154	0.836	0.198	0.214	0.853	0.215
8. I can talk about my problems with my family.	0.300	0.536	0.162	0.257	0.617	0.202
11. My family is willing to help me make decisions.	0.161	0.776	0.106	0.231	0.769	0.197
Factor 3: Significant others support						
1. There is a special person who is around when I am in need.	0.324	0.298	0.632	0.263	0.223	0.754
20. There is a special person with whom I can share joys and sorrows.	0.378	0.272	0.707	0.249	0.222	0.842
5. I have a special person who is a real source of comfort to me.	0.337	0.348	0.691	0.278	0.226	0.777
10. There is a special person in my life who cares about my feelings.	0.280	0.426	0.604	0.284	0.256	0.719
Cronbach's alpha coefficient	0.885	0.847	0.882	0.906	0.885	0.912

Fit Indices:

Sample 1: Chi-square/df = 4.564; Comparative Fit Index = 0.961, Norm Fit Index = 0.950; Tucker-Lewis Index = 0.948; RMSEA = 0.076, 90% RMSEA = 0.066 – 0.086.

Sample 2: Chi-square/df = 4.192; Comparative Fit Index = 0.981, Norm Fit Index = 0.976; Tucker-Lewis Index = 0.975; RMSEA = 0.058, 90% RMSEA = 0.050 – 0.066.

Confirmed structure of the MSPSS based on confirmatory factor analysis

The resulting three-factor structures of the 12-item MSPSS were submitted to IBM AMOS version 24. Figures 1 and 2 show results for samples 1 and 2, respectively. All samples showed acceptable fit indices, suggesting that the three-factor MSPSS fit well with the sample data. Samples 1 and 2 contained the same questionnaire items with the support from friend (4 items), support from family (4 items), and support from significant others (4 items) factors. These

Fit indices

Chi-square/df = 4.564; Comparative fit index = 0.961
Norm Fit index = 0.950; Tucker-Lewis index = 0.948
RMSEA = 0.076, 90% RMSEA = 0.066 – 0.086

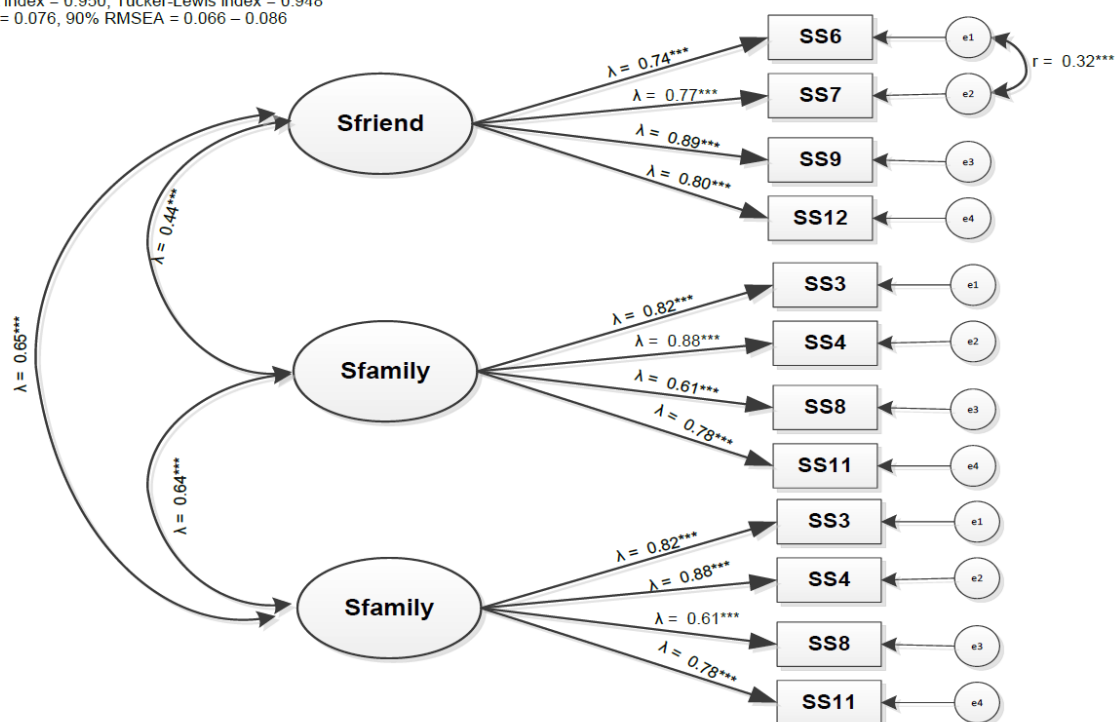


Figure 1 Confirmatory factor analysis of the MSPSS in high school students (n = 624).

Note: a) RMSEA = Root mean square error of approximation; b) 90% RMSEA = 90% confidence interval around RMSEA.

Fit indices

Chi-square/df = 4.192; Comparative fit index = 0.981
Norm Fit index = 0.976; Tucker-Lewis index = 0.975
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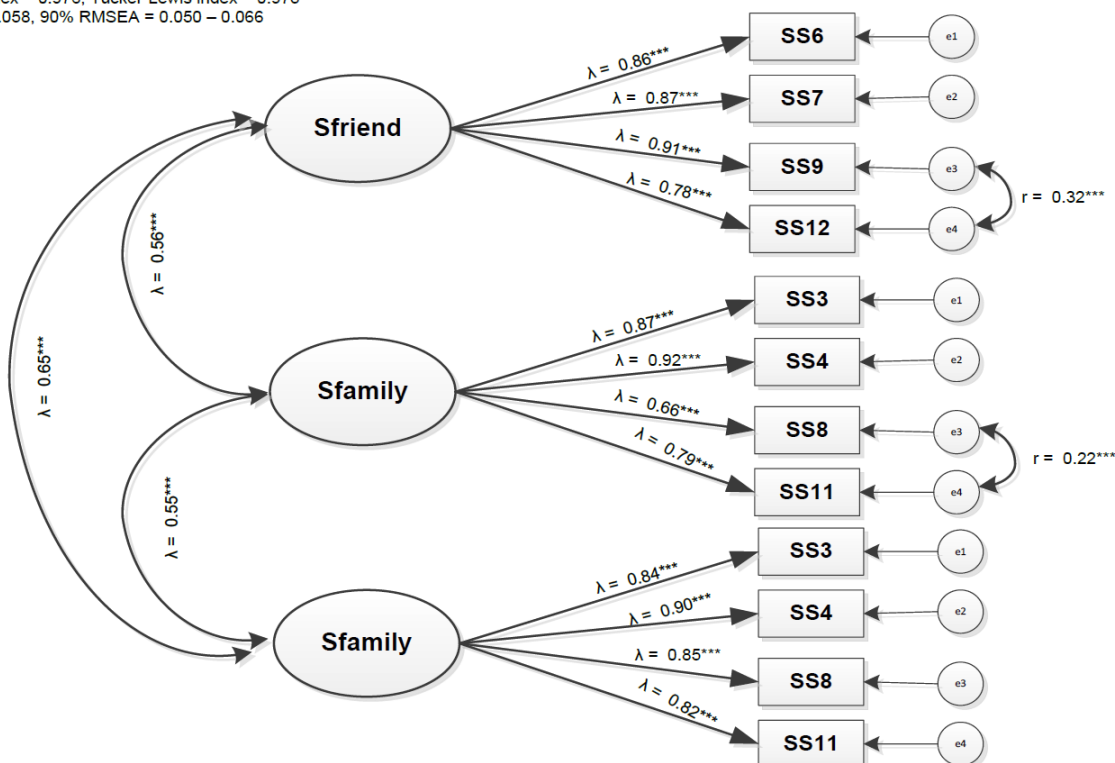


Figure 2 Confirmatory factor analysis of the MSPSS in university students (n = 966).

Note: a) RMSEA = Root mean square error of approximation; b) 90% RMSEA = 90% confidence interval around RMSEA.

items were also the same as those reported in EFA. All factor loadings achieved statistical significance (P -value < 0.001) with range of 0.604 - 0.842. Factor loadings in samples 1 and 2 were comparable across all items.

Discussions and Conclusion

This study aimed to examine the psychometric properties of the Thai version of the 12-item MSPSS using large two data sets across two samples namely high school students ($n = 624$) and university students ($n = 966$) in Thailand.

It is important to understand the measurement characteristics of the MSPSS as it is widely used and cited. Zimet and colleagues¹¹ provided empirical support for three-dimension of MSPSS which was supported by other studies both in Thailand²¹ and other countries.^{8,15,32} However, to our knowledge, this is the first study to test the factorial structure of MSPSS across assessment settings in Thai youth population. The MSPSS showed acceptable internal consistency reliability.

Results indicated that the 12-item MSPSS displayed good psychometric properties and a high level of reliability across two samples. Furthermore, the resulting three-factor structure was the same as that in the original 12-item MSPSS version, confirming the three dimensional measure of social support.

Moreover, our findings showed that the questionnaire items captured the construct of the social support among Thai youth students. The reliability of the Thai version of the 12-item MSPSS was similar to that of the original version¹¹ with Cronbach's alpha coefficients of 0.88 for the original version, and 0.91 for Thai version. The weights in factor analysis were within the range of 0.536 - 0.853 from our scale and 0.740 to 0.920 from the original scale.¹¹ All the items loaded strongly and cleanly on their respective factors. This evidence supported the construct validity of the 12-item MSPSS. Thus, CFA results confirmed the high level of consistency of the MSPSS so that it can be used as a standard tool to measure social support levels among Thai youth population.

This study was strengthened by the use of CFA (with AMOS), which provided a sophisticated way to examine the construct validity of the 12-item MSPSS using goodness-of-fit indices and enhance accuracy in estimating crucial parameters (i.e., factor loadings and correlation coefficients). Furthermore, the large sample size (624 high school students and 966 university students) could increase the

generalizability of research findings to the target population. In addition, among the strengths of our study it should be noted that this was a cross-sectional study across two relatively large samples. Thus, the study could confirm that the results were stable across samples or populations. These results reflected the instrument's stability. Besides, this was the first validation study of the 12-item MSPSS in Thai youth population. The scale was short and simple that needed little time and effort to self-administer. As a result, the MSPSS could be a suitable instrument for use in community studies specifically in school and university settings. Nonetheless, our study had some limitations. Since the samples in this study were limited to students in three high schools in Nakhonpathom province and one public university in Bangkok, generalizability to populations other than the two study settings could be relatively limited.

At present, social support is one of the most investigated protective factors for a number of health problems. This is because its positive results increase the resistance of an individual to detrimental transitions of life, daily stressors, and personal crises. Overall, the Thai version of MSPSS displayed a good psychometric performance in measuring social support among Thai youth. The initial results of the present study showed good internal consistency and construct validity for the MSPSS and suggested that the MSPSS Thai version could be used among varied groups of populations with confidence. It could be useful to empirically assess the perceived social support relating to young people's needs for support in the development of intervention strategies to promote their psychological well-being.

In conclusion, our findings indicated that the MSPSS Thai version is a psychometrically sound instrument with good internal consistency and factorial validity. It could be applied to measure the adequacy of perceived social support among Thai youth. The scale could be useful in future research investigating perceived support from family, friends, and significant others to advance understanding on social support in this growing population. Future research could further test the psychometric properties of MSPSS-12 on other Thai populations (such as adults and elderly), or cross-validate the scale on people in other countries. To strengthen external validity of research findings, studies with multi-centered recruitment, large sample size and cross-cultural aspect are also encouraged.

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